Training for General Practitioners in Opioid Prescribing for Chronic Pain Based on Practice Guidelines: A Randomized Pilot and Feasibility Trial

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Abstract: This study is a pilot and feasibility study that compares two training experiences to improve appropriate opioid prescribing for chronic pain. Both training conditions included education in relation to opioid guidelines. Following education one condition included training aimed at improving psychological flexibility and the other included training in practical knowledge and skills related to pain management. Eighty-one GPs took part in the study, each having been randomly assigned to one of the training conditions. It proved easy to recruit GPs to the training. Overall GPs demonstrated increased knowledge of opioid prescribing for chronic pain and decreases in concerns related to prescribing following training. However, there were no changes observed in reported prescribing practices or in secondary measures of well-being. There were also no significant differences between the training conditions, other than a greater increase in intention to use prescribing guidelines in the psychological flexibility condition. Feasibility and acceptability of the training methods were generally rated high. The psychological flexibility condition was rated higher than the comparison condition in terms of interest and satisfaction. Finally, processes of psychological flexibility before and after training significantly correlated with measures of GP well-being, providing partial support for the relevance of these processes as a focus in GP training.

Perspective: A training intervention for GPs including education on opioid guidelines for chronic pain and psychological flexibility training increased knowledge of prescribing and reduced concerns but did not change prescribing behavior or well-being. The training was highly acceptable to GPs but may have been too short to produce other effects.

Key words: Primary care, chronic pain, opioid, analgesic, prescribing, psychological flexibility

Introduction

Opioid analgesics are frequently used for the treatment of chronic non-malignant pain in primary care. However, both patients [26, 33] and General Practitioners (GPs) [18, 27] have concerns about these medications. GPs worry about the long term clinical commitment, the danger of addiction, and the possibility of other adverse effects associated with opioids, and these worries are associated with their patterns of prescribing opioids. [27] We know that GPs' worries related to other aspects of pain management may negatively influence their practice behavior, [22] including the degree to which they follow treatment guidelines. [6] It may be possible to improve pain management practices in primary care by addressing GPs' worries about opioids and the effects these worries have on their prescribing practices for chronic pain.

Current treatment guidelines clearly sanction the prescribing of long term opioids for chronic pain. [5, 3] At the same time the publication of guidelines does not appear to create clarity and consistency in opioid prescribing. While 83% of GPs in one study in the southwest of England believe that opioids are effective for chronic pain, 42.1% reported that they rarely or never prescribe them. [27] In this same study it was found that 57% also reported that they do not use guidelines when prescribing medications for chronic pain. [27] It may be that controversy surrounding opioids, the influence of GP worries about these medications, and a lack of practice guidelines use underlie this inconsistent prescribing pattern. Hence methods to increase use of practice guidelines could create greater consistency in prescribing.

Training in what is called *psychological flexibility* may be one way to lessen the ill effect that worries can have on the process of opioids prescribing.

Psychological flexibility entails the ability to act in accordance with goals and values relatively free from the influence of misleading, typically momentary, cognitive or emotional experiences. [15] It includes processes of acceptance, mindfulness, and values-based action. The primary treatment approach for increasing psychological flexibility is called Acceptance and Commitment Therapy (ACT, [16]) and it has been modified for delivery as a training method for professionals in work settings. [14] Studies of ACT-based training have been shown to reduce stigmatizing attitudes and burnout symptoms in substance abuse counselors, [14] to increase their willingness to use evidence-based pharmacotherapy, [37] and to decrease stress in a local government work setting. [10] Each of these applications seems relevant to the problems faced by GPs in prescribing opioids.

This study aimed to investigate the feasibility and potential for successful delivery of a combination of guidelines education and ACT-based training for GPs, particularly in relation to the prescribing of opioids for patients with chronic pain. In this study we delivered a guidelines education component to a group of GPs and then randomly assigned participants to either an ACT-based training condition or another standard training condition. We then examined the recruitment process and completeness of data and, preliminarily, the effects of the education and training conditions. It was hypothesized that the education component would improve knowledge of opioid prescribing and intention to use guidelines. As this was a pilot of ACT, it was further preliminarily hypothesized that in comparison to a standard training condition, the ACT condition would (a) directly increase GPs' acceptance and mindfulness, (b) decrease the impact of concerns about prescribing and reluctance to prescribe, and (c) increase well

being. Finally, based on correlation analyses we expected the processes of psychological flexibility measured in this study (psychological acceptance and mindfulness) to correlate with measures of GP health and well-being.

Methods

Participants

Eighty-one GPs working in the southwest of England took part in this study by attending one of three training days. About half were recruited through a database of GPs who had taken part in previous research. This research was related to prescribing practices for chronic pain but did not involve psychological flexibility or ACT. The other half responded to requests to participate from the UK southwest Primary Care Research Network (PCRN) (see Figure 1). The first group was sent a letter asking them to take part. Those who were recruited through the PCRN were emailed by the PCRN, informed about the study on an e-bulletin, or notified directly during a visit by PCRN staff. Those who expressed an interest by contacting research staff were given further information and booked onto one of the three days if they wanted to take part. Ethical approval for this study was granted by the local research ethics committee. Table 1 presents background characteristics for the sample.

Measures

In addition to providing standard personal and practice details the GPs completed measures of prescribing practices, concerns about opioids, psychological process variables, health and functioning, and opioids knowledge before the start of training and two weeks following training. At the end of the day of training they also completed the measures of psychological training process variables and opioids knowledge.

Prescribing Practices

GPs were asked to report their prescribing practices for chronic pain in the past week by indicating their frequency of prescribing for opioid medications among a list of other classes of analgesic medication. Only the frequency of opioid prescribing was examined in this study. They were asked to indicate their frequency of prescribing each on a five-point scale as “always”, “frequently”, “sometimes”, “rarely”, “never”, or “unsure”.

GPs were also asked how frequently they were reluctant to prescribe opioid analgesics for chronic pain, whether they used clinical guidelines, and whether they intended to use clinical guidelines. Once again, each one of these was rated on a five-point scale, including “always”, “frequently”, “sometimes”, “rarely”, or “never”.

Concerns about Analgesic Prescription

Concerns about prescribing analgesics for chronic pain were assessed with a 22-item measure developed in a previous study of GPs. [27] For each item participants are asked to rate how true each statement is from 0, “never true”, to 5, “always true”. The measure includes four subscales derived from factor analyses, [27] including concerns about Adverse Behavioral Effects (six items), Professional Scrutiny (four items), Other Adverse Effects (three items), and Efficacy Beliefs (two items). In previous research scores from this measure have been found to predict both frequency of prescribing opioids and reluctance to prescribe opioids. [27]

General Well-Being and Well-Being at Work

GPs completed the General Health Questionnaire (GHQ) as a general measure of well-being. The GHQ is a twelve-item measure of psychological well-

being over the last few weeks. [12] Items incorporate domains of depression, anxiety, somatic symptoms, and social withdrawal. It is rated on a 4-point scale from 0, “better than usual” to 3, “much less than usual” or 0, “not at all” to 3, “much more than usual”, depending on the item. The items were summed to create a total score. Reliability coefficients for the GHQ have ranged from 0.78 to 0.95. [19]

GPs also completed three ratings related to ‘burnout’ based on the Maslach Burnout Questionnaire. [24] These items reflect the three core features of burnout: emotional exhaustion, depersonalization, and feelings of positive influence on people’s lives (reverse-keyed). These items have been used in previous research as a brief way to reflect aspects of burnout and are appropriately correlated with other standard measures of well-being and health. [28] Only the negative symptoms were used in the current study.

The Acceptance and Action Questionnaire-II (AAQ-II)

The original AAQ [17] was developed to assess willingness to experience unwanted psychological experiences in the pursuit of one’s values and goals. Participants are asked to rate how true each item is on a seven point scale from 1, “never true” to 7, “always true”. Concurrent and predictive validity, and test-retest reliability has been demonstrated by this measure. [15, 17] The AAQ-II (Bond, 2010), a shorter version with 10 items, and correlated at r = .82 with the original, was used in this study. It is more psychometrically sound than the AAQ, having higher internal consistency. Seven of the items are reversed scored.

The Mindful Attention Awareness Scale (MAAS)

The MAAS [4] is a 15-item measure of awareness and present focused attention aspects of mindfulness. Participants are asked to rate how frequently

they experience each item on a 6-point scale, from 1, “almost always” to 6, “almost never”. Satisfactory psychometric properties have been demonstrated, including four-week test-retest reliability, intraclass correlation = .81, and internal consistency, alpha = .87; and convergent and discriminant validity. It positively correlates with a number of questionnaires measuring similar constructs and negatively correlates with public self-consciousness and social anxiety. [4]

Test of Opioid Knowledge (TOK)

The TOK is a 15-item multiple choice quiz based on The British Pain Society’s guideline document ‘Opioids for persistent pain: Good practice’. [3] It was developed with input from two psychologists with experience in test construction and two anaesthetists knowledgeable about chronic pain and opioids prescribing, including the lead of the British Pain Society opioid prescription guidelines committee. The TOK includes questions about how to manage the prescription of opioids for patients with chronic pain, and both the physical and behavioral effects of opioids. Each item has a choice of four responses with only one response being correct.

Training evaluation

A five-item training evaluation survey was used to evaluate the participants’ views of the training they completed. It was based in part on the widely used treatment credibility measure developed by Borkovec and Nau. [2] GPs were asked how interesting the training was, how satisfied they were with the quality, how logical the training was, how confident they were that the training would help in their practice, and how confident they would be in recommending the training to a colleague. Participants responded to the five items on an 11 point scale (0 = not at all, 10 = completely).

Procedure

Figure 1 developed from the CONSORT statement [30] shows progression of the GPs through the training trial. Informed consent was sought from all GPs at the start of the training day. All participants received a numbered copy of a delegate pack. This included pre-training measures, which they completed at that point. Participants next received a one hour lecture with discussion as one group. This part of the training was delivered by a clinical psychologist with experience in chronic pain management. The content of the lecture was based upon the guidelines produced by the British Pain Society (2010) "Opioids for persistent pain: Good practice." [3] Following this, GPs were allocated to two groups based on the number of their delegate pack and the allocation assigned to that number. A list of random allocations was calculated prior to the training day based on a permuted block design in order to assure equal numbers in each group. Following assignment they received either a training condition based on ACT [16, 25] or a standard training comparison condition. The researchers and GPs remained blind to the allocation until all the packs had been distributed in order to remove any potential for biasing the allocation. The GPs remained blind throughout the study to allocation to condition, the content of the two conditions, and the hypotheses under investigation.

Both training conditions included PowerPoint style presentations and discussion and each was three hours in duration. The ACT condition included a range of experiential exercises designed to promote psychological flexibility around negative or stigmatizing attitudes toward people with chronic pain and around thoughts and feelings that occur in the process of providing treatments for people with chronic pain. The methods of the ACT condition included such tasks

as asking participants to not think about jelly doughnuts. As this exercise tends to lead people to think about jelly doughnuts it shows experientially that attempting to get rid of unwanted thoughts can be difficult. Another task includes saying a word, such as lemons, seeing that lemon like qualities can be experienced in focusing on the word and then repeating the word very quickly for about 20 seconds, until “lemons” becomes just a sound. This can show that the meaning and influence of words (and therefore thoughts) can be modified without changing the words themselves and are based on context. The standard training comparison condition included further education about pain management based on the NICE (National Institute of Health and Clinical Excellence) guidelines [32] for the management of persistent non-specific low back pain from the UK. The control group also practiced communication exercises based on methods from motivational interviewing. [29]

At the end of the training day two brief measures were once again administered, this included the AAQ and the TOK. Two weeks after the training day GPs were sent by mail the full set of measures as performed before training, plus the training evaluation form. Of the 81 GPs who took part, two did not complete the follow up questionnaires, both in the standard training condition.

Results

First, we found that demand for training was high, sessions were oversubscribed, and attended at capacity. Three intended participants failed to attend as planned. One of these, however, did attend a later session. The popularity of the training suggests that GPs feel that prescribing opioids for chronic pain patients is challenging and they would benefit from training.

Training Evaluation

All GPs were asked to provide ratings in response to five questions about their experience of their training condition. The mean ratings for the two conditions are included in Table 2. In general GPs found the ACT-based training interesting and satisfying at high rates. Those in the ACT condition provided higher ratings for how interesting and engaging they found the training, $t(77) = 3.7$, $p < .001$, and how satisfied they were overall, $t(77) = 3.0$, $p < .01$, compared to the alternate training condition. The conditions were not different on how logical participants found the content to be, their confidence that the training will help practice, or their confidence in recommending the training to a colleague.

Initial Training Group Comparisons

We conducted a number of baseline comparisons between those GPs randomized to the two separate training conditions. Based on t-tests the two groups did not differ in age, years working as a GP, or the estimate of number of patients seen per week. Based on Chi-square analyses they also did not differ in gender, marital status, working full or part time, on whether their practice location was urban or rural, or in whether they reported any prior training in chronic pain management.

In terms of key study variables the two training groups also did not differ at baseline on opioids knowledge, prescribing guidelines use, reluctance to prescribe opioids, concerns about opioids, symptoms of burnout, wellbeing, psychological acceptance, or mindfulness. They did differ however on frequency of prescribing strong opioids for chronic pain, $t(79) = 2.2$, $p > .05$, with the GPs in the standard training condition reporting slightly higher frequency of prescribing, $M = 3.0$, $SD = .95$ versus $M = 2.5$, $SD = 1.0$ on a five-point scale.

Between Group Effects

Based on t-tests of follow-up scores there were no group differences on opioids knowledge, prescribing guidelines use, reluctance to prescribe opioids, concerns about opioids, symptoms of burnout, well being, psychological acceptance, or mindfulness. There was a trend toward greater intention to use guidelines in the ACT condition, $t(73) = 1.8$, $p = .07$, $M = 2.4$, $SD = 1.2$ versus $M = 2.0$, $SD = .95$. Based on an analysis of covariance, controlling for frequency of opioids prescribing at baseline, there was no significant between group difference on frequency of opioids prescribing. There was no group difference in the frequency of GPs reporting specific use of the BPS guideline for prescribing opioids for chronic pain. Means and standard deviations for continuous variables are included in Table 3.

Within Group Effects

Only two measures were administered at the end of the training day, the TOK and the AAQ-II. Paired t-tests showed that opioids knowledge improved in both groups, as reflected in the TOK scores, $t(40) = 15.8$, $p < .001$ and $t(30) = 12.7$, $p < .001$. Unexpectedly psychological acceptance, as measured by the AAQ-II, dropped significantly in the ACT condition, $t(40) = 3.5$, $p < .001$. It remained unchanged in the standard training condition.

A series of paired t-tests were calculated to examine training effects within the training conditions at follow-up. Both conditions demonstrated significantly improved knowledge of opioids prescribing, $t(40) = 14.5$, $p < .001$ and $t(37) = 7.6$, $p < .001$. The ACT condition showed significantly increased intention to use prescribing guidelines, $t(39) = 2.6$, $p < .05$. Both conditions demonstrated reduced concerns about adverse behavioral effects of opioids, $t(40) = 2.2$, $p < .05$ and $t(37) = 2.5$, $p < .05$. Both conditions also demonstrated reduced concerns

about professional scrutiny, $t(40) = 4.2$, $p < .001$ and $t(37) = 2.8$, $p < .01$. Based on a Wilcoxon test both groups were more likely at follow-up to report specifically following the BPS guidelines for opioids prescribing for chronic pain, $Z = 3.0$, $n = 41$, $p < .01$ and $Z = 3.0$, $n = 40$, $p < .01$.

There were no significant within condition changes in use of prescribing guidelines in general, frequency of prescribing opioids, reluctance to prescribe opioids, concerns over other adverse effects, beliefs about opioids efficacy, burnout symptoms, wellbeing, psychological acceptance, or mindfulness.

Exploratory Correlation Analyses

We calculated two series of correlations from both baseline measures and follow-up measures to determine whether the two psychological processes measured in the data might show significant relations with frequency of prescribing or reluctance to prescribe strong opioids for chronic pain. None of these correlations were significant. We also calculated a series of correlations to investigate whether these psychological processes would relate to GP reported burnout or general wellbeing. Unexpectedly a different pattern of correlations emerged at the two different time points. At baseline those GPs who reported higher mindfulness reported less depersonalization and those who reported higher psychological acceptance reported better wellbeing. There were no significant correlations between these psychological processes and emotional exhaustion. On the other hand, in the follow-up data, both GPs who reported higher psychological acceptance and higher mindfulness reported less depersonalization and better well being. Once again, neither process was correlated with emotional exhaustion. On average the correlations in the follow-

up data were larger than those in the baseline data. The correlations are included in Table 4.

Discussion

This study was designed to examine the feasibility and conduct a pilot test of a combination of guidelines education and ACT-based training for GPs in relation to prescribing opioids for chronic pain. The delivery of the training conditions and the conduct of study were demonstrated to be highly feasible. Recruitment and retention rates were high as were ratings of training quality. It was interesting that the ACT-based condition was rated as more interesting and engaging and more satisfying than the standard training condition. This suggests that GPs find the experiential exercises and emotionally evocative methods of ACT acceptable and may even prefer them to more didactic methods even when there are standard skills practice elements included, such as communication skills exercises in this case.

Secondarily we examined training effects. One reliable positive effect we demonstrated was an increase in knowledge of opioid prescribing both immediately post training and two weeks later. Overall participants also showed reduced concerns about adverse behavioral effects of opioids (e.g., addiction), reduced concerns about professional scrutiny around prescribing, and increased use of the specific BPS guidelines used in the education session. Within group analyses of the ACT-based condition showed an increase in intentions to use practice guidelines in general, while the standard training condition did not. Remarkably, there was a lack of significant within condition changes or between group differences in use of prescribing guidelines in general, frequency of prescribing opioids, reluctance to prescribe opioids, concerns over “other”

adverse effects, beliefs about opioids efficacy, burnout symptoms, wellbeing, psychological acceptance, or mindfulness.

Our results are consistent with results from a number of previous studies of physician education and training. As in our results, previous studies have shown repeatedly that well-designed training methods can improve knowledge of pain management and opioid prescribing.[8, 36] On the other hand changes in actual practice appear to be more difficult to achieve. Training experiences do not always produce greater adherence to clinical guidelines, for example, [13] consistent with our findings. Although we demonstrated an increase in reported use of a specific set of guidelines introduced during training, we did not show any shift in reported prescribing, or in reluctance to prescribe for that matter.

The lack of expected effects on ACT-related processes of acceptance and mindfulness and on measures of well-being and burnout was unexpected. There were no significant improvements in these measures during training for either of the groups. It was expected that those in the ACT condition would have had increased acceptance and mindfulness scores, increased well-being, and decreased burnout scores, as these types of effects have been demonstrated in previous training trials. [6,36] We believed we had designed the training and the trial to show at least preliminary evidence for effects. There are several possible explanations for the lack of effects. First, the ACT and standard training sessions were only three hours in duration and fitted within a longer training day. This may have been sub-optimal exposure. Second, it is possible that the assessment intervals were not optimally scheduled. The assessment at the end of the treatment day probably did not allow enough time for changes in the behavior reflected in the acceptance and mindfulness measures. The two week interval

after training also may not have been the most sensitive point to capture a training effect. Third, it may have been more prudent to select GPs who struggle with relatively greater worries about prescribing opioids. This could have increased the chances of finding an effect. Finally, some of the measures chosen may have been rather blunt instruments for capturing effects of training, particularly the AAQ-II, MAAS, and GHQ, as the training addressed specific experiences around opioid prescribing for chronic pain and not wider processes of general functioning. In the future using instruments specifically designed for the content of training is advised.

Given the failure to show any superiority of ACT-based training over education plus skills training it is worth reviewing the rationale for ACT as a training method for GPs in this context. It has been demonstrated that interactive training is more effective than exposure to practice guidelines alone. [35] ACT includes highly interactive methods. ACT has been specifically tested to see if it can surpass education alone in leading substance abuse counselors to refer their clients for evidence-based pharmacotherapy, which it did. [36] Although substance abuse counselors are not themselves prescribers, the context of stigmatizing attitudes and opioid use are similar in general practice. ACT is specifically designed to undermine the influence of difficult to shift stigmatizing attitudes and worries, without creating resistance or argument, in a way that information alone often fails to do. It is, in the end, primarily an approach to performance management, whether this be in the context of patient functioning [9] or in relation to professional functioning. [14] Hence, in theory ACT appears directly applicable to the problem of opioid prescribing despite the current results.

In contrast to our inability to demonstrate significant training effects of the ACT-based condition, the correlation results involving acceptance and mindfulness were in line with our hypotheses. In the baseline data psychological acceptance was positively associated with well-being and mindfulness was negatively associated with depersonalization. In the follow-up data both acceptance and mindfulness were significantly correlated with both depersonalization and wellbeing. The source of the change in the magnitude of the correlations from baseline to follow-up is unclear. Obviously the training experience or the shift in assessment circumstances interacted in some way with the responses the participants made to the questionnaire items.

Opioid prescribing for chronic pain is associated with some controversy and clearly there are significant concerns associated with the use of opioids for chronic pain. For example, there may be aberrant patterns of opioid use in up to 24% of patients receiving opioid medications for chronic low back pain. [23] Many patients discontinue opioids due to adverse effects or insufficient pain relief. [21, 33] Long term opioid use for chronic pain particularly is associated with significantly decreased odds of recovery [35] and with lower quality of life. [9, 20, 11, 35] Among people with chronic pain chronic opioid use is more common in those with mental health or substance abuse disorders, [7] and those on the highest doses appear to present with higher rates of psychiatric and substance abuse disorders. [31] For all of these reasons further study and additional training experiences for prescribers are needed.

There are some limitations to this study. First, analgesic prescribing was self-report and relied on recall. It may have increased accuracy if this had been measured by reviewing medications actually prescribed. Second, those GPs who

find prescribing to chronic pain patients the most challenging may have preferred not to take part in this study. Hence, our results may not apply to them. The same self selection bias may be at play with those high in emotional frustration and powerlessness. There may also be preferences among GPs in relation to types of training, whether experience-based or didactic, and these could affect outcome. We did not assess preferences and cannot appreciate their potential influence.

In summary, this preliminary study produced mixed results. Clearly the methods used are feasible and acceptable. Results also showed that the training experience overall was associated with significantly increased knowledge of opioids for chronic pain, decreased concerns about adverse behavioral effects of opioids and about professional scrutiny, and increased use of a guideline specifically used in training. On the other hand we did not observe changes in frequency or reluctance to prescribe opioids. We also did not see any compelling differences between the alternate training conditions, particularly in terms of changes in practice or wellbeing. These results provide directions for further study.

Acknowledgements

We would like to thank Dr Miles Thompson for his help during delivery of training conditions. We are also very grateful to Dr Peter Brook and Dr Cathy Stannard for advice on the Test of Opioid Knowledge.

Disclosures

This study was supported by The Bath Institute for Rheumatic Diseases and Napp Pharmaceuticals, UK.

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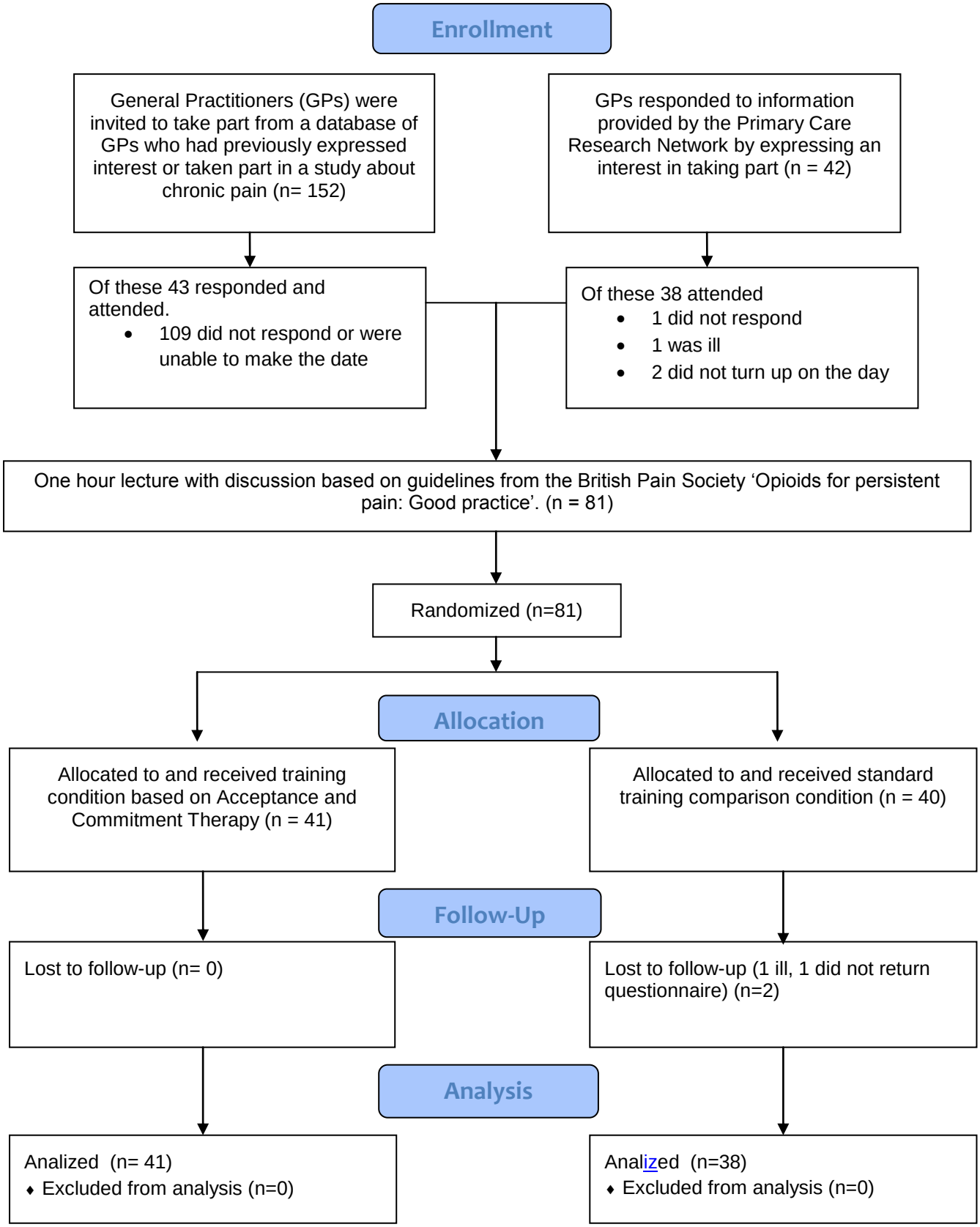

Figure 1. Study participant flow

Table 1. Demographic details of the sample.

	Mean or Percentage
Age	
Male	47.3 (SD 10.2)
Female	44.9 (SD 7.1)
Sex	
Men	60.5%
Women	39.5%
Marital Status	
Married	86.4%
Single	11.1%
Divorced	2.5%
Ethnic group	
White	95.1%
Other ethnicities	3.7%
Missing	1.2%
Working status	
Full time	60.5%
Part time	39.5%
Working hours per week	39.4 (SD 12.1)
Number of patients per week	109.0 (SD 36.9)
Practice location	
Rural	21.0%
Urban	42.0%
Mixed	37.0%

Medical qualification gained in	
United Kingdom	95.1%
European economic area	2.5%
Elsewhere	2.5%
Training in chronic pain	
Yes	8.6%
No	91.4%

Table 2. Results of training evaluation

	ACT condition			Standard Training		
	M	SD	% ratings ≥ 5	M	SD	% ratings ≥ 5
How interesting and engaging was training	7.4	1.7	92.7	5.6 ***	2.6	65.8
How satisfied were you with quality of training	7.3	1.8	90.2	5.7 **	2.9	63.2
How logical does this type of training seem	5.5	2.4	65.9	5.8	3.0	63.2
How confident are you that this training will help you in practice	5.6	2.0	73.2	5.6	3.0	68.4
How confident would you be in recommending this training	6.1	2.2	80.5	5.2	3.2	57.9

Note: Each item rated on a scale from 0 “not at all” to 10 “completely. Training conditions differed as indicated: ** $p < .01$, *** $p < .001$.

Table 3. Mean scores pre and post training by condition

	ACT condition		Standard Training	
M (SD)	Pre	Follow-up	Pre	Follow-up
TOK	9.7 (1.9)	13.6 *** (1.2)	9.9 (2.2)	12.9 *** (1.7)
Use of Prescribing Guidelines	1.9 (.96)	2.1 (1.1)	1.8 (.89)	2.2 (1.2)
Intention to Use Prescribing Guidelines	1.9 (1.0)	2.4 * (1.2)	2.0 (1.1)	2.0 (.97)
Frequency of Prescribing Opioids	2.6 (1.1)	2.6 (.93)	2.9 (.91)	2.7 (1.0)
Reluctance to Prescribe Opioids	2.7 (.94)	2.7 (.88)	2.8 (.83)	2.5 (.74)
Concerns Adverse Behavioral Effects	17.0 (3.9)	15.9 * (2.9)	16.8 (3.6)	15.5 * (3.4)
Professional Concerns	10.2 (3.1)	8.8 *** (2.1)	8.8 (2.7)	7.8 ** (2.9)
Concerns Other Adverse Effects	7.9 (2.2)	7.7 (1.8)	7.6 (2.1)	7.1 (1.8)
Concerns Efficacy beliefs	6.5 (1.4)	6.2 (1.2)	6.0 (1.4)	6.2 (1.5)
Emotional Exhaustion	5.2 (2.4)	5.1 (2.2)	5.2 (2.3)	5.4 (2.3)
Depersonalization	2.5	2.6	2.2	2.3

	(1.8)	(1.5)	(1.8)	(1.3)
Wellbeing (GHQ)	9.7 (2.7)	10.0 (3.7)	9.5 (3.9)	10.8 (5.0)
Psychological Acceptance (AAQ-II)	56.1 (5.4)	55.3 (5.4)	55.8 (7.3)	55.8 (7.6)
Mindfulness (MAAS)	4.3 (0.5)	4.2 (0.6)	4.1 (0.8)	4.2 (0.7)

Note: Means different from pre-training: * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4.

Exploratory correlations between measures of psychological acceptance and mindfulness and GP burnout symptoms and well being.

	Correlations at Baseline		Correlations at Follow-up	
	Psychological Acceptance	Mindfulness	Psychological Acceptance	Mindfulness
Emotional Exhaustion	-.16	-.12	-.089	-.14
Depersonalization	-.087	-.23 *	-.23 *	-.32 ***
Wellbeing (GHQ)	.28 *	.051	.51 ***	.31 **

Note: Marked correlations are significant: * $p < .05$, ** $p < .01$, *** $p < .001$.